

TRANSMITTAL LETTER			Case No. 7814/86
Serial No. 70/629,537	Filing Date July 28, 2003	Examiner To Be Assigned	Group Art Unit To Be Assigned
Inventor(s) Viresh H. Rawal et al.			
Title of Invention Methods of Performing Cycloadditions, Reaction Mixtures, and Methods of Performing Asymmetric Catalytic Reactions			

TO THE COMMISSIONER FOR PATENTS

Transmitted herewith is Transmittal Letter (in duplicate), Information Disclosure Statement (in duplicate), Form PTO-1449, Forty-six (46) Cited References (A1-A46), and Return Postcard.

- ☒ Small entity status of this application under 37 CFR § 1.27 has been established by verified statement previously submitted.
- ☐ Applicant claims small entity status. See 37 CFR 1.27.
- ☐ Petition for a _____ month extension of time.
- ☒ No additional fee is required.
- ☐ The fee has been calculated as shown below:

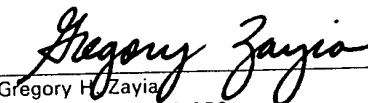
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra
Total		Minus		
Indep.		Minus		
First Presentation of Multiple Dep. Claim				

Small Entity	
Rate	Add'l Fee
x \$9 =	
x 43 =	
+ \$145 =	
Total add'l fee	\$

Other Than Small Entity	
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x \$18 =	
x \$86 =	
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Total add'l fee	\$

- ☐ Please charge Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE) in the amount of \$ _____. A duplicate copy of this sheet is enclosed.
- ☐ A check in the amount of \$ _____ to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this communication or credit any overpayment to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.
- ☒ I hereby petition under 37 CFR § 1.136(a) for any extension of time required to ensure that this paper is timely filed. Please charge any associated fees which have not otherwise been paid to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.

Respectfully submitted,


Gregory H. Zayia
Registration No. 48,059
Agent for Applicants
Customer No. 00757 - Brinks Hofer Gilson Lione

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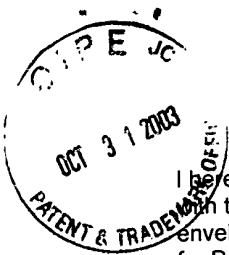
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Date of Deposit

Gregory H. Zayia - Reg. No. 48,059

Name of Applicant, Assignee or
Registered Representative

Gregory Zayia

Signature

October 28, 2003

Date of Signature

Our Case No.: 7814/86

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Viresh H. Rawal et al.

Serial No.: 10/629,537

Filing Date: July 28, 2003

For: Methods of Performing
Cycloadditions, Reaction Mixtures,
and Methods of Performing
Asymmetric Catalytic Reactions

Examiner: To Be Assigned

Group Art Unit No.: To Be Assigned

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents A1-A46 listed on the attached Form PTO-1449 be considered by the Examiner and made of

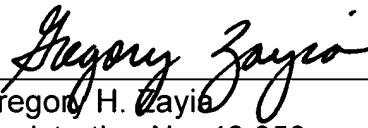
record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

In accordance with 37 C.F.R. § 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

This Information Disclosure Statement is being filed prior to the receipt of the first Official Action reflecting an examination on the merits and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement. However, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to this communication, the Commissioner is hereby authorized to deduct the fees from Brinks Hofer Gilson & Lione Deposit Account No. 23-1925. A duplicate copy of this document is enclosed.

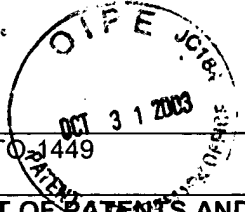
Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,



Gregory H. Zayia
Registration No. 48,059
Agent for Applicants

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FORM PTO-1449 LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (use several sheets if necessary)	SERIAL NO. 10/629,537	CASE NO. 7814/86
FILING DATE July 28, 2003	GROUP ART UNIT To Be Assigned	
APPLICANT(S): Viresh H. Rawal et al.		

REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

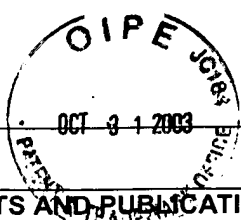
EXAMINER INITIAL	DOCUMENT NUMBER <small>Number-Kind Code (if known)</small>	DATE	NAME	CLASS/SUBCLASS	FILING DATE
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER <small>Number-Kind Code (if known)</small>	DATE	COUNTRY	CLASS/SUBCLASS	TRANSLATION YES OR NO
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EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS <small>(Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.</small>				
	A1	Xu, M.; Pu, L., "A New 1,1'-Binaphthyl-Based Catalyst for the Enantioselective Phenylacetylene Addition to Aromatic Aldehydes without Using a Titanium Complex", <i>Organic Letters</i> , 2002 , Vol. 4, No. 25, pp. 4555-4557.			
	A2	Guay, V.; Brassard, P., "Reactions of Ketene Acetals 15 ¹ . Regiospecific Syntheses of Erythrolaccin and "7-Hydroxyerythrolaccin".", <i>Tetrahedron</i> , 1984 , Vol. 40, No. 24, pp. 5039-5045.			
	A3	Schiess, P.; Eberle, M.; Huys-Francotte, M.; Wirz, J., "Thermal Addition Reactions to Benzocyclobutenones Studied by Flash Photolysis", <i>Tetrahedron Letters</i> , 1984 , Vol. 25, No. 21, pp. 2201-2204.			
	A4	Midland, M. M.; Graham, R. S., "High Threo Diastereoselectivity via Europium(III)-Catalyzed Cyclocondensation of a Silyloxy Diene with α -Alkoxy Aldehydes. Synthesis of (-)-Pestalotin", <i>J. Am. Chem. Soc.</i> , 1984 , Vol. 106, No. 15, pp. 4294-4296.			
	A5	Daniewski, W. M.; Kubak, E.; Jurczak, J., "High-Pressure Approach to the Total Synthesis of (\pm)-Ambreinolide and (\pm)-8-Epiambreinolide", <i>J. Org. Chem.</i> , 1985 , Vol. 50, No. 21, pp. 3963-3965.			
	A6	Rigby, J. H.; Wilson, J. A. Z., "A General Approach to the Synthesis of C ₈ -Oxygenated Guaianolides", <i>J. Org. Chem.</i> , 1987 , Vol. 52, No. 1, pp. 34-44.			
	A7	Kozmin, S. A.; Janey, J. M.; Rawal, V. H., "1-Amino-3-siloxy-1,3-butadienes: Highly Reactive Dienes for the Diels-Alder Reaction", <i>J. Org. Chem.</i> , 1999 , Vol. 64, No. 9, pp. 3039-3052.			
	A8	Huang, Y.; Rawal, V. H., "Hetero Diels-Alder Reactions of 1-Amino-3-siloxy-1,3-butadienes under Strictly Thermal Conditions", <i>Organic Letters</i> , 2000 , Vol. 2, No. 21, pp. 3321-3323.			
	A9	Kozmin, S. A.; Green, M. T.; Rawal, V. H., "On the Reactivity of 1-Amino-3-siloxy-1,3-dienes: Kinetics Investigation and Theoretical Interpretation", <i>J. Org. Chem.</i> , 1999 , Vol. 64, No. 21, pp. 8045-8047.			
	A10	Kozmin, S. A.; Rawal, V. H., "Chiral Amino Siloxy Dienes in the Diels-Alder Reaction: Applications to the Asymmetric Synthesis of 4-Substituted and 4,5-Disubstituted Cyclohexenones and the Total Synthesis of (-)- α -Elemene", <i>J. Am. Chem. Soc.</i> , 1999 , Vol. 121, No. 41, pp. 9562-9573.			
	A11	Huang, Y.; Iwama, T.; Rawal, V. H., "Highly Enantioselective Diels-Alder Reactions of 1-Amino-3-siloxy-dienes Catalyzed by Cr(III)-Salen Complexes", <i>J. Am. Chem. Soc.</i> , 2000 , Vol. 122, No. 32, pp. 7843-7844.			
EXAMINER		DATE CONSIDERED			

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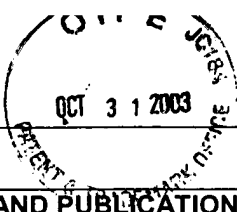


FORM PTO-1449	SERIAL NO. 10/629,537	CASE NO. 7814/86
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE July 28, 2003	GROUP ART UNIT To Be Assigned
(use several sheets if necessary)		APPLICANT(S): Viresh H. Rawal et al.

EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.	
	A12	Steiner, T., "Donor and acceptor strengths in C-H...O hydrogen bonds quantified from crystallographic data of small solvent molecules", <i>New J. Chem.</i> , 1998 , pp. 1099-1103.
	A13	Kryachko, E. S.; Zeegers-Huyskens, T., "Theoretical Study of the CH...O Interaction in Fluoromethanes-H ₂ O and Chloromethanes-H ₂ O Complexes", <i>J. Phys. Chem. A.</i> , 2001 , Vol. 105, No. 29, pp. 7118-7125.
	A14	Breslow, R., "Hydrophobic Effects on Simple Organic Reactions in Water", <i>Accounts of Chemical Research</i> , 1991, Vol. 24, No. 6, pp. 159-164.
	A15	Kelly, T. R.; Meghani, P.; Ekkundi, V. S., "Diels-Alder Reactions: Rate Acceleration Promoted By A Biphenylenediol", <i>Tetrahedron Letters</i> , 1990 , Vol. 31, No. 24, pp. 3381-3384.
	A16	Schmidt, R. R., "Hetero-Diels-Alder Reaction in Highly Functionalized Natural Product Synthesis", <i>Accounts of Chemical Research</i> , 1986 , Vol. 19, pp. 250-259.
	A17	Schuster, T.; Kurz, M.; Göbel, M. W., "Catalysis of a Diels-Alder Reaction by Amidinium Ions", <i>J. Org. Chem.</i> , 2000 , Vol. 65, No. 6, pp. 1697-1701.
	A18	Schreiner, P. R.; Wittkopp, A., "H-Bonding Additives Act Like Lewis Acid Catalysts", <i>Organic Letters</i> , 2002 , Vol. 4, No. 2, pp. 217-220.
	A19	Martin, T.W.; Derewenda, Z. S., "The name is bond – H bond", <i>Nature Structural Biology</i> , 1999 , Vol. 6, No. 5, pp. 403-406.
	A20	Vachal, P.; Jacobsen, E. N., "Structure-Based Analysis and Optimization of a Highly Enantioselective Catalyst for the Strecker Reaction", <i>J. Am. Chem. Soc.</i> , 2002 , Vol. 124, No. 34, pp. 10012-10014.
	A21	Schuster, T.; Bauch, M.; Dürner, G.; Göbel, M. W., "Axially Chiral Amidinium Ions as Inducers of Enantioselectivity in Diels-Alder Reactions", <i>Organic Letters</i> , 2000 , Vol. 2, No. 2, pp. 179-181.
	A22	Jørgensen, K. A., "Catalytic Asymmetric Hetero-Diels-Alder Reactions of Carbonyl Compounds and Imines", <i>Angew. Chem. Int. Ed.</i> , 2000 , Vol. 39, pp. 3558-3588.
	A23	Prins, L. J.; Reinhoudt, D. N.; Timmerman, P., "Noncovalent Synthesis Using Hydrogen Bonding", <i>Angew. Chem. Int. Ed.</i> , 2001 , Vol. 40, pp. 2382-2426.
	A24	Huang, Y.; Rawal, V. H., "Hydrogen-Bond-Promoted Hetero-Diels-Alder Reactions of Unactivated Ketones", <i>J. Am. Chem. Soc.</i> , 2002 , Vol. 124, No. 33, pp. 9662-9663.
	A25	Seebach, D.; Beck, A. K.; Heckel, A., "TADDOLs, Their Derivatives, and TADDOL Analogues: Versatile Chiral Auxiliaries", <i>Angew. Chem. Int. Ed.</i> , 2001 , Vol. 40, pp. 92-138.
	A26	Dalko, P. I.; Moisan, L., "Enantioselective Organocatalysis", <i>Angew. Chem. Int. Ed.</i> , 2001 , Vol. 40, pp. 3726-3748.
	A27	Bednarski, M.; Danishefsky, S., "Interactivity of Chiral Catalysts and Chiral Auxiliaries in the Cycloaddition of Activated Dienes with Aldehydes: A Synthesis of L-Glucose", <i>J. Am. Chem. Soc.</i> , 1986 , Vol. 108, No. 22, pp. 7060-7067.
	A28	Corey, E. J.; Cywin, C. L.; Roper, T. D., "Enantioselective Mukaiyama-Aldol and Aldol-Dihydropyrone Annulation Reactions Catalyzed by a Tryptophan-Derived Oxazaborolidine", <i>Tetrahedron Letters</i> , 1992 , Vol. 33, No. 46, pp. 6907-6910.

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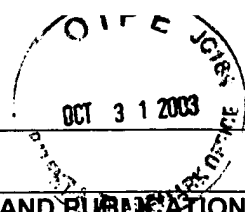


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	A29 Wang, B.; Feng, X.; Huang, Y.; Liu, H.; Cui, X.; Jiang, Y., "A Highly Enantioselective Hetero-Diels-Alder Reaction of Aldehydes with Danishefsky's Diene Catalyzed by Chiral Titanium(IV) 5,5',6,6',7,7',8,8'-Octahydro-1,1'-bi-2-naphthol Complexes", <i>J. Org. Chem.</i> , 2002 , Vol. 67, No. 7, pp. 2175-2182.
	A30 Long, J.; Hu, J.; Shen, X.; Ji, B.; Ding, K., "Discovery of Exceptionally Efficient Catalysts for Solvent-Free Enantioselective Hetero-Diels-Alder Reaction", <i>J. Am. Chem. Soc.</i> , 2002 , Vol. 124, No. 1, pp. 10-11.
	A31 Kezuka, S.; Mita, T.; Ohtsuki, N.; Ikeno, T.; Yamada, T., "Highly Active 3-Oxobutylideneaminatocobalt Complex Catalysts for an Enantioselective Hetero Diels-Alder Reaction", <i>Bull. Chem. Soc. Jpn.</i> , 2001 , Vol. 74, No. 7, pp. 1333-1342.
	A32 Hanamoto, T.; Furuno, H.; Sugimoto, Y.; Inanaga, J., "Asymmetric Hetero Diels-Alder Reaction Catalyzed by Chiral Ytterbium(III) Phosphate {Yb[(R)-(-)-BNP] ₃ }: Remarkable Ligand Effect on the Enantioselectivity", <i>Synlett</i> , 1997 , pp. 79-80.
	A33 Schaus, S. E.; Brånalt, J.; Jacobsen, E. N., "Asymmetric Hetero-Diels-Alder Reactions Catalyzed by Chiral (Salen)Chromium(III) Complexes", <i>J. Org. Chem.</i> , 1998 , Vol. 63, No. 2, pp. 403-405.
	A34 Aikawa, K.; Irie, R.; Katsuki, T., "Asymmetric hetero Diels-Alder reaction using chiral cationic metallosalen complexes as catalysts", <i>Tetrahedron</i> , 2001 , Vol. 57, pp. 845-851.
	A35 Huang, Y.; Unni, A. K.; Thadani, A. N.; Rawal, V. H., "Hydrogen Bonding: Single Enantiomers from a chiral-alcohol catalyst", <i>Nature</i> , 2003 , Vol. 424, p. 146.
	A36 Pindur, U.; Lutz, G.; Otto, C., "Acceleration and Selectivity Enhancement of Diels-Alder Reactions by Special and Catalytic Methods", <i>Chem. Rev.</i> , 1993 , Vol. 93, No. 2, pp. 741-761.
	A37 Kumar, A., "Salt Effects on Diels-Alder Reaction Kinetics", <i>Chemical Reviews</i> , 2001 , Vol. 101, No. 1, pp. 1-19.
	A38 Tietze, L. F.; Ketschau, G., "Hetero Diels-Alder Reactions in Organic Chemistry", <i>Topics in Current Chemistry</i> , 1997 , Vol. 189, pp. 1-120.
	A39 Bednarski, M. D.; Lyssikatos, J. P., "Reactions of Activated Dienes with Aldehydes", <i>Comprehensive Organic Synthesis</i> , 1991 , Vol. 2, pp. 661-706.
	A40 Beck, A. K.; Bastani, B.; Plattner, D. A.; Petter, W.; Seebach, D.; Braunschweiger, H.; Gysi, P.; La Vecchia, L., "Grossansätze zur Herstellung von $\alpha,\alpha,\alpha^1,\alpha^1$ -Tetraaryl-1,3-dioxolan-4,5-dimethanolen (TADDOLe): Nützliche Hilfsstoffe für die EPC-Synthese und ihre Struktur im Festkörper", <i>Chimia</i> , 1991 , Vol. 45, pp. 238-244.
	A41 Lubineau, A.; Augé, J., "Water as Solvent in Organic Synthesis", <i>Topics in Current Chemistry</i> , 1999 , Vol. 206, pp. 1-39.
	A42 Brouard, C.; Pornet, J.; Miginiac, L., "A Convenient Synthesis of 3,4-Bis(Trimethylsilylmethyl)-5,6-Dihydro-2H-Pyrans Through a Catalyzed Hetero Diels-Alder Reaction", <i>Synthetic Communications</i> , 1994 , Vol. 24, No. 21, pp. 3047-3053.
	A43 Chino, K.; Takata, T.; Endo, T., "A Novel Synthesis of 1-Isochromanols Via Hetero Diels-Alder Reaction of Carbonyl Compounds with 1-Trimethylsilyloxy-Benzocyclobutene as a Precursor of α -OXY- α -Quinodimethane Under Mild Condition", <i>Synthetic Communications</i> , 1996 , Vol. 26, No. 11, pp. 2145-2154.

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	A44	Danishefsky, S. J.; DeNinno, M. P., "Totally Synthetic Routes to the Higher Monosaccharides", <i>Angew. Chem. Int. Ed. Engl.</i> , 1987 , Vol. 26, pp. 15-23.
	A45	Kametani, T.; Hibino, S., "The Synthesis of Natural Heterocyclic Products by Hetero Diels–Alder Cycloaddition Reactions", <i>Advances in Heterocyclic Chemistry</i> , 1987 , Vol. 42, pp. 245-333.
	A46	Grieco, P. A., "Organic Chemistry in Unconventional Solvents", <i>Aldrichimica Acta</i> , 1991 , Vol. 24, No. 3, pp. 59-66.

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